



Lake Carriers' Association

The Greatest Ships on the Great Lakes

JAMES H. I. WEAKLEY, PRESIDENT

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November 8, 2010

Via E-mail: ow-docket@epa.gov

Attention Docket ID No. EPA-HQ-OW-2010-0126

**CLEAN WATER ACT SECTION 312(b): NOTICE SEEKING STAKEHOLDER
INPUT ON PETITION AND OTHER REQUEST TO REVISE THE
PERFORMANCE STANDARDS FOR MARINE SANITATION DEVICES
FEDERAL REGISTER, VOL. 75, NO. 132, JULY 12, 2010, PAGES 39683-39691**

Dear Sir or Madam:

Lake Carriers' Association represents 18 American companies that collectively operate 55 U.S.-flag vessels on the Great Lakes. These vessels move the raw materials that drive the U.S. economy: iron ore for steel production, coal for power generation, aggregate and cement for the construction industry.... In periods of peak demand, our members can move more than 115 million tons of cargo per year, or well over half of all waterborne commerce on the Great Lakes.

We have polled our members and determined there are 66 Marine Sanitation Devices on their vessels. Almost are Type II units. The majority of vessels have one MSD. Some have two, one forward and one aft. The vessels with units fore and aft reflect the design of most lakers through the early 1970s. The pilothouse and accommodations for Deck Department personnel were located forward. The engine room and accommodations for the Engine Department were located aft. All vessels built since 1973 combine both into one structure located aft.

Attachment A lists the various types of MSDs aboard our members' vessels and provides the name of the manufacturer and model number.

Attachment A also lists the Nominal Rated Capacity (Persons) for the various MSDs and the unit's U.S. Coast Guard rating (Gal/Day). However, it is important to point out that the Nominal Rated Capacity (Persons) exceeds, in some instances vastly, the number of individuals on these vessels. For example, one unit, the Hamworthy ST-20, is rated for 59 persons. Another, the Scienco/Fast B35D, is rated for 79 persons. **By law**, no vessel enrolled in Lake Carriers' Association is allowed to carry anywhere near that many persons. These vessels are inspected by the U.S. Coast Guard and issued a Certificate of Inspection ("COI") that, among other things, specifies how many crewmembers are required to safely operate the vessel, and then how many other "Persons Other Than Crew" are allowed on the vessel. The maximum number of persons allowed on our members' vessels ranges from 18 to 44.

Continued.../

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The Association Representing Operators of U.S.-Flag Vessels on the Great Lakes

AMERICAN STEAMSHIP COMPANY ♦ ANDRIE, INC. ♦ ARMSTRONG STEAMSHIP COMPANY ♦ BELL STEAMSHIP COMPANY
CENTRAL MARINE LOGISTICS, INC. ♦ GRAND RIVER NAVIGATION COMPANY, INC. ♦ GREAT LAKES FLEET/KEY LAKES, INC.
INLAND LAKES MANAGEMENT, INC. ♦ THE INTERLAKE STEAMSHIP COMPANY ♦ KK INTEGRATED SHIPPING ♦ LAKES SHIPPING COMPANY
LAKE MICHIGAN CARFERRY SERVICE ♦ PERE MARQUETTE SHIPPING ♦ PORT CITY MARINE SERVICES ♦ PORT CITY STEAMSHIP SERVICES
SOO MARINE SUPPLY, INC. ♦ UPPER LAKES TOWING COMPANY, INC. ♦ VANENKEVORT TUG & BARGE INC.

Attachment B provides contact information for the various manufacturers of these MSDs.

The request for comments asks several questions about the operation and capabilities of MSDs. We will leave the highly-detailed descriptions and answers to the manufacturers. For example, they can best opine about their units' ability to treat nutrients. We will focus on actual shipboard operation, performance, and maintenance, our area of expertise.

The units on our members' vessels are gravity fed and treat both sewage and greywater. In this regard the units are unique, as the requirement to treat both sewage and greywater is specific to the Great Lakes. Vessels operating outside the Great Lakes are not required to process their greywater through their MSD.

Again, almost all the MSDs on our members' vessels are Type II.¹ These units, known as biological aerobic sewage treatment systems, treat sewage using a combination of bacteria and air to remove liquid and solid waste and turn the sewage into an effluent that meets federal requirements for permissible discharge in areas so designated.

Great care is taken to insure the proper operation of these units. The key is of course that the bacteria remains alive. Therefore, use of non-biodegradable cleaners and products containing bleach, chlorine, and other bacteria-killing substances is banned. Soaps used for bathing and washing clothes must be non-toxic and biodegradable.

All effort is made to reduce solids introduced into the system. Biodegradable, quick-dissolving toilet paper is employed. Following meals, plates are scraped and wiped clean before being placed in the dishwasher. Some vessels have installed macerators to grind up any solids that might enter the system.

Steps to reduce greywater include use of low-flow shower heads and high-efficiency washing machines.

The end result is an effluent that not only meets but exceeds Federal standards. Federal regulations require that the fecal coliform bacterial count be no greater than 200 per 100mL, and total suspended solids no more than 150 mg per liter. In reviewing test results on MSD effluent, we find fecal coliforms generally < 2 and total suspended solids ranging from 9 to 36.

Actually, in terms of suspended solids, the requirement for MSDs discharging into the Great Lakes is even stricter than the federal standard: 50 mg/l. Again, the units on our members' vessels exceed that standard.

Canada has imposed two other requirements for MSD effluent discharged into its Great Lakes waters: Biological Oxygen Demand 5 ("BOD (5)") and Residual Chlorine. The limit for the former is 50 mg/l; for the latter, the range is 0.5 – 1.0 mg/l. Again a review of lab tests finds BOD (5) ranging from 3 to 38 and Residual Chlorine ranging from 0.12 to 0.30.

Not all of our members' vessels have MSDs. Several vessels are equipped with holding tanks and then pump out to a shoreside receptacle as necessary. The reason for this is that these vessels are (or were) in more or less dedicated trades. The carferry BADGER, for example operates between just two ports – Ludington, Michigan, and Manitowoc, Wisconsin, and is underway for only four hours each voyage. (The vessel also only operates between May 28 and October 3.)

The cement carrier ST. MARYS CHALLENGER only loads in one port, so is in Charlevoix, Michigan twice a week on average.

¹ One vessel uses maceration and treatment with chlorine.

The self-unloader JOSEPH L. BLOCK, another vessel fitted with holding tanks, was dedicated to hauling iron ore from Escanaba, Michigan, and Two Harbors, Minnesota, to Inland Steel's mill in Indiana Harbor when launched in 1976. The vessel was at the steel mill every few days. (When making repeated runs from Escanaba to Indiana Harbor, the vessel was at the mill every other day.) Although the vessel now carries some cargo for other customers, it is still largely dedicated to serving what is today the ArcelorMittal mill, so the operator can still count on the vessel being at the mill well before the tank reaches its 14-day capacity.

However, the majority of vessels in the fleet are in much more varied trades. A ship can load iron ore in Duluth, Minnesota, take it to Conneaut, Ohio, then load coal in Toledo, Ohio for delivery to Muskegon, Michigan, then steam for Calcite, Michigan, where it will load limestone destined for Buffalo. It could go back north for another iron ore cargo, but this time its load port might be Two Harbors or Silver Bay (both in Minnesota). Vessels in these mixed trades would have to have pump-out arrangements at scores of docks if fitted with holding tanks.

The purchase price of an MSD ranges from \$10,000 to \$40,000 per unit. MSDs are not an "off the shelf" item. The manufacturer may have the unit in stock, but if not, production and delivery could easily take 8-10 weeks.

MSDs are not compact. For example, the Scienco/Fast MX-5 measures 12 feet in length, six feet in width, and six feet in height. A small unit, a Humphrey 10AB, is 4 feet long, 2 feet, 4 inches in width, and 6.5 feet in height.

The cost of installation on an existing self-propelled vessel is estimated to range from \$30,000 to \$90,000 depending on the difficulty of the task.² The \$30,000 figure assumes the MSD is in a location that is readily accessible (given the cramped engineering spaces on commercial vessels, the word "easily" is rarely appropriate) and most of the existing black and greywater piping can be re-used. In the case of the \$90,000 figure, shipyard workers have to cut thru the shell (hull) of the vessel to remove the existing equipment and then install a new unit and significant re-piping follows.³

Installation of an MSD requiring only minor modifications to existing piping and wiring would probably take 4 to 5 working days (straight time). If time was of the essence, a two-shift-a-day schedule could probably result in a 3-day operation. The opposite end of the scale is as much as ten days for installing a unit in a difficult-to-reach location.

MSDs are like the vessels they serve; a well-maintained unit can last indefinitely. While some of our members have replaced units after 20 years of service, others have overhauled units. Such overhauls include replacement of internal media and pumps.

Since 1999, our members' vessels have participated in the Marine Sanitation Device Great Lakes Industry Voluntary Testing Program developed by LCA. Under this policy, the U.S. Coast Guard is requested to examine maintenance records and testing records and interview crewmembers to determine if the MSD(s) is functioning properly. If there is reason to believe the unit is malfunctioning,

² We have decided to not base costs on new construction. Due to vast changes in the steel industry and manufacturing in general, there has been very little new construction for the Lakes in past three decades. Also, since the Lakes are fresh water, vessels have extremely lengthy lifespans (the ST. MARYS CHALLENGER was launched in 1906), so companies first modernize existing hulls before building new. Again, it must be noted space in the engine room is at a premium. This has implications not only for MSDs, but ballast water treatment systems. Given the current state of technology, it appears a ballast water treatment system that could handle lakers' flow rates and volumes would have to be so large it could not be fitted into a vessel.

³ A smaller unit sized for a tug costs about \$15,000 and installation is estimated to range from \$5,000 to \$10,000.

efforts are made to correct the problem on the spot. If that is not feasible (a part or a tool are needed for example), the Coast Guard will either issue form CG-835 or a Captain of the Port Order requiring the owner or operator to arrange for an independent laboratory to perform fecal coliform and suspended solid tests and send the results directly to the Coast Guard. If the Coast Guard believed the MSD was completely non-functional, a No Sail Order could be issued.

Under the Voluntary Testing Program, vessels with aerobic process and chlorine disinfection will perform the following tests and examinations and make the results available to boarding Coast Guard officers:

1. Vessels with USCG-certified Type I and Type II systems will perform and record the results of four tests on a weekly basis. These include chemical tests for dissolved oxygen and residual chlorine, a visual examination for clarity, and an odor test.
2. In addition to the weekly tests, vessels will send a sample of effluent for each treatment plant to an on-shore testing laboratory twice each year for testing (some companies test as many as four times per year). The laboratory will perform tests for fecal coliform and total suspended solids. Copies of the test reports are retained on the vessel for 12 months.
3. Coast Guard personnel may examine sewage treatment systems for proper operation whenever they are aboard a vessel. They may examine weekly test logs and test lab reports.

Engineering Department personnel are responsible for maintenance and operation of the MSD. For Scienco/Fast systems, scheduled maintenance can include the following:

As Required

1. Check chlorinator and dechlor feed tubes. Replenish tablets as required. Care must be taken that the tablets do not break. Therefore, rather than drop tablets into the feed tubes, the feed tubes are removed and tablets added from the end.

Weekly

1. Lubricate Roots blower bearings.
2. Check wet well sight glass for clear water.
3. Check regenerative blower inlet filter and clean as required.

Monthly

1. Check Roots blower vee drive belt tension and alignment.
2. Check dissolved oxygen (DO) in effluent or in wet well as applicable.
3. Check chlorine residual (total available chlorine) in effluent or in wet well as applicable and adjust as required. Residual should be between 1.0 mg/l and 2.0 mg/l.

Every Three Months

1. Air scour, pump out, and refill media tank.

Dissolved Oxygen

DO should be not less than 2.0 mg/l at any time including period of peak flow at change of watch. If it is low:

1. Open media tank and inspect airlift operation. All should be pumping at a high rate and causing turbulent flow at the surface of the water.
2. Shut off power to the Roots blower motor, remove the belt guard, grab the blower sheave and check for end play. If any significant end play is detected, the blower head plates are worn and the blower must be repaired or replaced.

Maintenance on a Hamworthy MSD and other manufacturers' units is similar. For example, there are daily checks of air pressure and removal of sludge from the aeration tank. The chlorine content of the effluent is checked on a weekly basis and adjustments made when necessary. The quantity of suspended solids in the aeration compartment is checked on a monthly basis.

The EPA seeks information on other countries' laws. We will leave discussion of Canadian laws and regulations to our colleagues in Ottawa, Canadian Shipowners Association.

The EPA asks if it should consider revisions to the performance standards and what should be the basis for such a decision. We believe it is unnecessary to re-address the performance standards for commercial vessels' MSDs. Section 312(b)(1) of the Clean Water Act directs the EPA to "promulgate Federal standards of performance for marine sanitation devices ... which shall be designed **to prevent the discharge of untreated or inadequately treated sewage into or upon the navigable waters** (emphasis added)...." The Federal acceptable level of fecal coliform colonies ("CFU") above which water quality is said to be diminished is that which is applied to our members' MSDs: no more than 200 per 100 milliliters ("ml") of water. As noted elsewhere, lab test results show that the effluent from our members' MSDs falls well below that level. In general, there are less than 2 CFU per 100 ml.

Is there any evidence that this standard somehow fails water quality in the Great Lakes? To our knowledge the answer to that question is "No."

Even if this standard were somehow to represent a shortcoming, we would hope the EPA would determine and focus on the source of inadequately treated effluent. We do not think commercial vessels and the comparatively small amount of effluent they generate poses any threat given the high standards to which the effluent is treated and the vastness of the Great Lakes. The Lakes are estimated to contain 64 quadrillion gallons of water. Our members have 55 vessels. Counting the crew and then allowing for other persons such as cadets, repairmen, and the occasional guests, there are perhaps 1,300 people on the vessels at a given time. There are single office buildings that have more people in them than are found on the entire U.S.-flag Great Lakes fleet.

Then too, the vessels are dispersed about the Lakes, so there's no great concentration of either vessels or effluent. On October 15, 2010, we polled our members and found the fleet distributed as follows:

Lake Superior	14
Lake Michigan	17
Lake Huron	12
Lake Erie	5
Lake Ontario	1

You will note the total – 49 – is less than we have listed for our Association. With the economy still not fully recovered from the recession, a number of vessels have not operated this year. One, the carferry BADGER, has ended its season.⁴

In contrast, there are 4.3 million registered recreational vessels in the eight Great Lakes. While certainly not all are operated on the Great Lakes, rec boats vastly outnumber commercial vessels, even when Canadian lakers and ocean-going vessels are factored into the equation. At a given time there are perhaps 175 freighters of all flags on the Lakes. On a nice summer weekend, there are likely a million or more pleasure craft on the Lakes.

How many land-based water sources discharge into the Lakes? We will not venture a guess, but it is elementary that shoreside sources discharge much greater volumes than the U.S.-flag Lakes fleet, and even all the commercial vessels combined.

The Friends of the Earth Petition asks the EPA to establish monitoring, recordkeeping, and reporting requirements. We believe this unnecessary given that MSD testing and maintenance are entered in the vessel's log book, which must be made available to the Coast Guard upon request. A tidal wave of recordkeeping and forms has swept over the maritime industry in the past decade or so. We would like to spare our crews any unnecessary paperwork so they can focus on what they do best – operating vessels safely and efficiently. Data on the operation and maintenance of our MSDs is already available.

In closing, we would like to stress that Lake Carriers' Association has consistently shown a great respect for the environment. Decades ago, when there were hundreds of ships in operation, most of which were coal-fired, we established a Smoke Abatement Committee to address the problem. In the early 1990s, we were – voluntarily – the first maritime organization in North America to develop and implement measures to address the spread of non-indigenous species introduced via the ballast water on ocean-going vessels. Our VOLUNTARY BALLAST WATER MANAGEMENT PLAN FOR THE CONTROL OF RUFFE IN LAKE SUPERIOR PORTS was hailed by U.S. Fish & Wildlife service as being "on the cutting edge of technology." Rightfully so. Even though the twin ports of Duluth, Minnesota / Superior, Wisconsin, can handle more than 1,100 vessels in a given year, only two populations of ruffe have been found outside Lake Superior, and one, that in Alpena, Michigan, has apparently died out.

We later developed and implemented Best Management Practices for ballasting operations Lakeswide. We even instituted specific measures meant to address an outbreak of Viral Hemorrhagic Septicemia.

Since our vessels are registered in the United States and owned and operated by American companies, we are subject to the full range of U.S. laws. But that is not the only reason we take our environmental responsibilities seriously. The Great Lakes region is where we live and raise our families. We want safe drinking water and clean beaches as much as the next person and our members operate their vessels in a manner that reflects that desire.

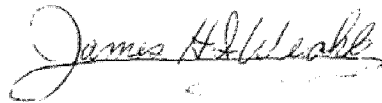
If the EPA chooses to revise the standards for MSDs, we ask that the most serious consideration be given to grandfathering existing units. The standards to which these units operate are protective of Great Lakes water quality. If new technology allows for even higher standards, we must determine if

⁴ While the BADGER is truly a seasonal operation, nearly all commercial vessels are in service less than 365 days a year. Most vessels get underway in the last week of March or first week of April and then begin to lay-up in late December, with most back in their winter berth by mid-January. There was one integrated tug/barge unit in the liquid-bulk trade that operated year-round, but its trade patterns have changed. The Lakes are more or less closed from late January until early March.

the cost equals the benefit. As noted earlier, there are 66 MSDs on our members' vessels. If we use an average purchase price of \$25,000 and installation cost of \$60,000, we are looking at spending \$5,610,000 to retrofit the fleet. That is a significant expense and one that should be incurred only if there is a demonstrable need. It is important to note that Section 312(b)(1) of the Clean Water Act requires consideration of the economic costs. Again, though, we believe the current standard is protective of Great Lakes water quality, so industry, the EPA, and others all should use their talents and resources to address issues that do pose a threat to the environment.

Thank you for the opportunity to comment. If you need additional information, we will do our best to provide it in as timely a manner as possible.

Sincerely,

A handwritten signature in cursive script, reading "James H. I. Weakley".

James H. I. Weakley
President

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Attachment A
Marine Sanitation Devices Installed on U.S.-Flag Lakers

Manufacturer	Model #	Nominal Rated Capacity (Persons)	U.S. Coast Guard Rating (Gal/Day)
Ahead Tank	AT-16D	16	88
American Land and Marine Sanitation, Inc.	Humphrey 10AB	Available from USCG	5,760
Biogest (Type 1)	25A	Available from USCG	Available from USCG
Hamworthy	STA2 Super Trident	18	824
Hamworthy	ST-20	59	3,584
Owens Kleen Tank	n/a	25	500
Red Fox	RF-200-FP-FG	5	200
Red Fox	RF-500M	25	500
Red Fox	RF-750M	38	750
Scienco/Fast	12DM	16	360
Scienco/Fast	13M-DC	9	420
Scienco/Fast	18DM	16	540
Scienco/Fast	18M	17	900
Scienco/Fast	25DM	35	750
Scienco/Fast	32D4S	32	5,800
Scienco/Fast	38D4	38	5,700
Scienco/Fast	38D4S	60	5,700
Scienco/Fast	40DM	32	1,200
Scienco/Fast	40D4	40	3,240
Scienco/Fast	40D4S2	40	3,240
Scienco/Fast	50D4	50	1,200
Scienco/Fast	50DM	43	1,500
Scienco/Fast	50DMS	44	1,500
Scienco/Fast	B35D	79	2,475
Scienco/Fast	D3	47	2,700
Scienco/Fast	D3M	30	1,300
Scienco/Fast	D4M	45	2,775
Scienco/Fast	L-1X	6	130
Scienco/Fast	L-2X	10	190
Scienco/Fast	L-3X	13	255
Scienco/Fast	L-4X	19	380
Scienco/Fast	M-2	15	3,057
Scienco/Fast	MX-2	21	450
Scienco/Fast	M-4	17	1,440
Scienco/Fast	MX-5	21	1,700

Attachment B

Contact Information for Manufacturers of MSDs on LCA Vessels
(Listed Alphabetically)

Ahead Sanitation Systems

Lafayette, LA 70503
Phone: (337) 237-5011
Fax: (337) 837-7785
Web site: www.aheadtank.com
E-Mail: headflusher@aheadtank.com

American Land and Marine Sanitation, Inc.

1174 Camp Street
New Orleans, LA 70130
Phone: (504) 525-6304

Biogest (subsidiary of American Shipbuilding Company)

Ceased operations. Spare parts still available.

Hamworthy, Inc.

1011 Highway 6 South
Suite 208
Houston, TX 77077
Phone: (281) 759-3280
Fax: (281) 759-8308
Web site: www.hamworthy.com
E-Mail: usa@hamworthy.com

Koehler-Dayton (Enviromac)

Ceased operations. Spare parts still available.

Owens Manufacturing and Specialty Co., Inc.

1917 Dulles Drive
Lafayette, LA 70506
Phone: (337) 991-9580
Fax: (337) 991-9566
Web site: www.owenskleentank.com
E-Mail: Sales@owenskleentank.com

RedFox Environmental Services

1513 B Chemin Agreeable Rd.
Youngsville, LA 70592
Phone: (337) 856-3709
Fax: (337) 856-9151
Web site: www.redfoxenviro.com
E-Mail: info@redfoxenviro.com

Scienco/Fast

12977 Maurer Industrial Drive
Sunset Hills, MO 63127-1515
Phone: (314) 645-6540
Fax: (314) 645-6131
Web site: www.sciencofast.com
E-Mail: solutions@sciencofast.com